

REMARKS

Claims 1-7, 10-17, and 25-27 are now pending in the application. No claims have been amended by this Response. No new matter has been added.

Claims 1-7, 10-17, and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,514,357 to Tada et al. in view of US Patent No. 4,126,595 to Martorano et al.

Claim 1 recites, among other features, that the surface is further treated with at least one water-soluble crosslinker, the crosslinker comprising at least 2 crosslinking groups selected from the group consisting of azirane, oxirane, and thiirane groups.

As appreciated by the Examiner, Tada fails to suggest features corresponding to the above-quoted features of the independent claim. However, the Office Action relies on Martorano for curing the deficiencies of Tada.

Tada is directed at metal-surface-treating agents for corrosion protection. At col. 1, lines 11-12, Tada describes the coatings suggested therein as having a superior conductivity. To achieve such coatings, Tada suggests, at col. 5, lines 17-29, pseudo-crosslinking reactions with multi-valent cations. According to col. 5, line 26, in Tada, "sufficient corrosion resistance" is obtained with pseudo-crosslinking. Thus, starting from Tada, a person skilled in the art is not directed to introduce additional "non pseudo-crosslinking," i.e., permanent crosslinking by forming chemical bonds.

Specifically, Tada suggests, at col. 5, line 17, that the three kind of metal ions suggested therein are essential. Further, Tada suggests, at col. 8, lines 30-31, that pseudo-crosslinking occurs between metal ions and molecules of carboxylic acids. Thus, pseudo-crosslinking is not attributed to the presence of the – optional – coupling agents, but to the specific combinations of the essential metal ions and the organic resin. Moreover, according to Tada, the coupling agents, such as the γ -glycidoxypolytrimethoxysilane suggested at col. 10, line 31, may contain only one epoxide-group. Thus, the coupling agents are not cross-linkers that connect two polymer

chains, but are compounds for introducing new functional groups, for example, into a single polymer chain.

Accordingly, the coupling agents suggested in Tada have nothing to do with crosslinking. Coupling agents are introduced “because resistance against fingerprints and adhesiveness to the overcoat can be improved.” See col. 6, lines 36-39, of Tada.

What is more, Tada suggests, at col. 5, lines 26-27, that sufficient corrosion resistance and conductivity can be achieved even when the film is thin. Accordingly, Tada provides a solution for the problem discussed therein. A skilled artisan is not directed at further improving the pseudo-crosslinked coatings of Tada because the coatings are already sufficient even when the films are thin.

In addition, Applicants respectfully submit that the Office Action, at page 3, lines 12-13, has made an insufficient showing that using a multi-functional epoxy compound would further increase the density of the coating. At col. 7, lines 20-22, Tada suggests that the coordination with metal ions makes the film more dense. However, Tada makes no mention of an increase in density caused by the coupling agents, nor can it be unequivocally stated that adding multi-functional epoxy compounds would increase the density because such a system is not described in Tada. Stated differently, the assertion in the Office Action that adding multi-functional epoxy compounds would increase the density cannot be considered, by instant and unquestionable demonstration, as being well-known.

The Office Action applies Martorano for suggesting oxirane and azirane crosslinking agents.

Martorano suggests permanent coating produced by thermosetting. Specifically, Martorano suggests pigmented or unpigmented thermosettable compositions, which may be applied as “metal decorating” to beer cans, vegetable cans, screw caps for jars, and aerosol containers.

Further, Martorano suggests, at col. 3, lines 26-27, that the compositions therein are stable aqueous alkaline blends. These coatings are therefore not related to the problem or the technical field of corrosion protection, especially in an acidic medium.

Claims 2-7, 10-17, and 25-27 are in condition for allowance for at least their respective dependence on an allowable claim 1, as well as for the separately patentable subject matter that each of these claims recites.

In view of the above, Applicants believe the pending application is in condition for allowance.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 22-0185, under Order No. 12810-00237-US1 from which the undersigned is authorized to draw.

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Respectfully submitted,

Electronic signature: /Georg M. Hasselmann/
Georg M. Hasselmann
Registration No.: 62,324
CONNOLLY BOVE LODGE & HUTZ LLP
1875 Eye Street, NW
Suite 1100
Washington, DC 20006
(202) 331-7111
(202) 293-6229 (Fax)
Attorney for Applicant